TEST PROCEDURE FOR TURBINE CYCLE HEAT RATE

AND HP TURBINE EFFICIENCY TEST

1.0 INTRODUCTION

This procedure outlines the Turbine Cycle Heat Tests that will be conducted to demonstrate that the guaranteed performance requirements of the HP Turbine Contract have been satisfied. The tests will be conducted the Intermountain Power Service Corporation (IPSC) with a third party agency providing test support.

The third party test agency will supply test instrumentation to the requirements of ASME PTC 6 (alternative), using the direct final feedwater flow method method. The test will be carried out in accordance with "ASME Performance Test Code PTC 6 1996 Alternative Test Procedure for Steam Turbines", except as otherwise stated by IPSC.

2.0 OBJECTIVE OF TESTS

The main objective of the test is to determine the HP Turbine Efficiency and Wheel Power (equivalent electrical load), following the installation of the upgraded HP turbine to determine HP turbine contract penalties and incentives.

The following is a list of test objectives:
Turbine Cycle Heat Rate
HP Turbine Enthalpy Drop Test
HP Turbine Wheel Power (electrical load equivalent)
IP Turbine Enthalpy Drop Test
Boiler Feed Pump volute upgrade acceptance
Boiler Feed Pump Turbine Performance

In addition, there are several key relationships that must be established:

- HP Turbine Bowl Pressure (1st stage pressure tap replacement) to throttle steam flow for turbine controls setup,
- Final feedwater flow to throttle flow relationship (for controls as well as monitoring steam flow for safety valve limitations)
- Generator electrical output reconciliation with Station Instrumentation

3.0 HP TURBINE- CONTRACTUAL GUARANTEES

3.1 The HP Turbine section upgrade provided by ALSTOM are guaranteed to provide 92.2% HP turbine efficiency (main steam valve inlet to HP turbine exhaust) when operating the turbine with all control valves wide open.